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SUB-PROJECT COMPLETION REPORT

COMPONENT–VI

Contingent Emergency Response

Prepared By: LEA Associates South Asia Pvt. Ltd.

Technical Assistance & Quality Audit Consultants

VOLUME-I

PROCUREMENT & SUPPLY OF MEDICAL EQUIPMENTS BY JKMSCL UNDER COMPONENT- 6


JKMSCL
BVG
THE WORLD BANK
IBRD-IDA
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AMBULANCE SERVICE
ADVANCE LIFE SUPPORT
AMBULANCE


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1. Introduction

1.1 Project Background

In September 2014, Jammu & Kashmir experienced torrential monsoon rains in the region causing major flooding & landslides. The continuous spell of rains from September 2-6, 2014 caused Jhelum and Chenab Rivers as well as many other streams/tributaries to flow above the danger mark. The Jhelum River also breached its banks flooding many low-lying areas in Kashmir, including the capital. In many districts, the rainfall exceeded the normal by over 600%. The Indian Meteorological Department (IMD) records precipitation above 244.4 mm as extremely heavy rainfall and J&K received 558mm of rain in the June – September period as against the normal 477.4 mm. For example, the district of Qazigund recorded over 550 mm of rainfall in 6 days as against a historic normal of 6.2 mm over the same period.

Due to unprecedented heavy rainfall the catchment areas particularly the low lying areas were flooded for more than two weeks. Some areas in urban Srinagar stayed flooded for 28 days. Water levels were as high as 27 feet in many parts of Srinagar. The areas from the main tributaries of river Jhelum vis-à-vis Brenginallah, Vishavnallah, Lidernallah and Sandrannallah started overflowing due to the heavy rainfall causing water levels in Jhelum to rise. Subsequently, the discharge of the river Suran was 200 thousand cusecs as against an average of 50 thousand cusecs. With the excessive discharge of water, the river Suran affected the basin areas and also took a different course at various locations causing damages to the surrounding villages in the catchment area. Water levels also increased in the rivers of Chenab and Tawi, both of which were flowing above normal levels. Due to the rivers overflowing nearly 20 districts of the State were impacted.

A Joint team led by the Department of Economic Affairs (DEA), GoI, with representation from the World Bank visited J&K on October 21, 2014. Subsequently, GoI has sent a request to the World Bank on January 5, 2015 to field a joint Rapid Damage and needs Assessment (RDNA) Mission within the State. In response, a mission of the World Bank visited the State during February 1-6, 2015 in order to produce a rapid multi-sectoral assessment report of the damages and needs. The RDNA estimates the total damages and loss caused by floods at about INR 211.975 Million, most of it to housing, livelihoods; roads and bridges which combined represented more than 70% of the damages in terms of value. Public service infrastructure and equipment of hospitals and education centers were also severely damaged and are still not fully operational.

Based on the Rapid Damage Needs Assessment (RDNA): Results, restoration works underway and discussion with the GOJ&K, the project will focus on resorting critical infrastructure using international best practice on resilient infrastructure. Given the state's vulnerability to both floods and earthquakes, the infrastructure will be designed with upgraded resilient features and will include contingency planning for further disaster events. Therefore, the project aims at both restoring essential services disrupted by the floods and improving the design standard and practices in the state to increase resilience.

1.2 Project Development Objective: The Project Development Objective (PDO) is to support the recovery and increase disaster resilience in targeted areas of the state and increase the capacity of the state entities to respond promptly and effectively to an eligible crisis or emergency.

1.3 Project Components:

The project is comprised of the following seven components:

1. Reconstruction and strengthening of critical infrastructure (US$ 50 million)
2. Reconstruction of Roads and Bridges (US$ 55 million)
3. Restoration of Urban Flood Management Infrastructure (US$ 40 million)
4. Restoration and strengthening of livelihoods (US$ 15 million)
5. Strengthening disaster risk management capacity (US$ 25 million)
6. Contingent Emergency Response (US$ 45 million)
7. Implementation Support (US$ 20 million).

Total Amount is US$ 250 Million.

Component 6 – Contingent Emergency Response, US$ 45 million:

Component 6 was designed as a flexible financial mechanism within the project to ensure a swift and effective response to unforeseen natural disasters. In the event of a major adverse natural event, such as earthquakes, floods, or other catastrophic events, the Project Implementation Entity (PIE) was empowered to request the reallocation of project funds to support emergency response and recovery efforts. This component was intended to draw resources from the unallocated expenditure category and, if necessary, re-categorize and reallocate financing from other project components to address immediate needs arising from the disaster.

Contingent Emergency Response: Under Component 6, around **6000 medical equipment items** were procured and supplied, allocated under **70 sub-projects** by the Jammu and Kashmir Medical Supplies Corporation Limited (JKMSCL), acting as the Project Implementation Unit (PIU). These medical supplies were distributed to hospitals, district health centers, sub-district hospitals, and community health centers across the Union Territory of Jammu and Kashmir. The medical equipment was approved by the World Bank under the JTFRP (J&K), significantly enhancing the capacity and resilience of the healthcare system in the region.

2. Executive Summary:

- **Objective:** The objective of Component 6 was to create a flexible financial mechanism that facilitates rapid and effective responses to unforeseen natural disasters, enhancing the resilience and capacity of the healthcare system in the Union Territory of Jammu and Kashmir.
- **Summary of Achievement:** Under this component, approximately 6,000 medical equipment items were procured and distributed through 70 sub-projects, significantly improving the healthcare infrastructure. The Jammu and Kashmir Medical Supplies Corporation Limited (JKMSCL), as the Project Implementation

Unit (PIU), played a crucial role in executing these initiatives, ultimately enhancing the region's ability to respond to medical emergencies.

2.1 Introduction & Background: Component 6 was established as part of the Jhelum Tawi Flood Recovery Project (JTFRP) to ensure that the healthcare system could effectively respond to such emergencies. The component aimed to provide a streamlined process for reallocating funds to address urgent needs arising from natural disasters, ensuring that critical medical supplies were readily available.

2.2 Project Detail: All the Medical equipments have been procured/ supplied as per the specifications provided/approved by the JKMSCL authority bolstered the healthcare system's readiness. The equipments to be supplied are detailed below

2.3 CONTRACT DETAIL:

S. No.	Identified Activity/Work	Consultant / Contractor Name	Awarded/ Revised (INR Crore)	Start Date	Date of Completion
1	Procurement of 20 No. Water Purification system	M/s J&K Scientific Agencies	2.00	13-Nov-20	13-Feb-21
2	Procurement of 30 No. Defibrillator (Biphasic)	M/s V A Technologies	1.63	16-Nov-20	16-Feb-21
3	Procurement of 25 No. Integrated Bipolar and Ultrasonic Coagulation Cutting Unit.	M/s Medallion Corporation	7.04	7-Dec-20	7-Mar-21
4	Procurement of 40 No. Pediatric Glucometer / Bilirubinmeter	M/s Medilux System	1.70	16-Nov-20	16-Feb-21
5	Procurement of 40 no. Hemo Dialysis Machine for Pediatric Patients	M/s Nipro Medical India Pvt Ltd	1.80	17-Nov-20	17-Feb-21

6	Procurement of 300 No. Oxygen Concentrator	M/s Moditech International	1.20	13-Nov-20	13-Feb-21
7	Procurement of 40 No. Operation Table Hydraulic Major	M/s LM Agencies	0.43	13-Nov-20	13-Feb-21
8	Procurement of 300 No. Cardiac Monitor	M/s Medilux System	3.02	16-Nov-20	16-Feb-21
9	Procurement of 20 no Fully Automated 5 Part differential Hemotology Analyzer	M/s Transasia Bio Medicals Ltd	1.17	3-Dec-20	3-Mar-21
10	Procurement of 75 No. High Flow Oxygen Devices	M/s S.R Technomed	2.27	2-Dec-20	2-Mar-21
11	Procurement of 75 No. High Flow Oxygen Devices	M/s Malik Sles Agencies	2.27	28-Nov-20	28-Feb-21
12	Procurement of 150 No. High Flow Oxygen Devices	M/s LM Agencies	4.54	2-Dec-20	2-Mar-21
13	Procurement of 240 No. ICU Beds	M/s Raj Steel Industries	3.38	13-Nov-20	13-Feb-21

14	Procurement of 20 No. 300 mA X-Ray Machine	M/s S.R Technomed	2.15	16-Nov-20	16-Feb-21
15	Procurement of 140 No. Blood Bank Refrigerator.	M/s Jaykon Scientific Industyries	3.77	24-Nov-20	24-Feb-21
16	Procurement of 50 No. Diathermy Machine and Vessel Sealing	M/s S.R Technomed	8.13	16-Nov-20	16-Feb-21
17	Procurement of 40 No. Semi auto Bio-Chemistry Analyzer	M/s S.R Technomed	1.12	16-Nov-20	16-Feb-21
18	Procurement of 20 no Platelet Incubator with Agitator	M/s Jaykon Scientific Industyries	0.43	24-Nov-20	24-Feb-21
19	Procurement of 20 No. Plasma Thawing Bath/Machine	M/s Jaykon Scientific Industyries	0.19	24-Nov-20	24-Feb-21
20	Procurement of 20 no Blood Mixer and collection Monitor	M/s J aykon Scientific Industyries	0.16	24-Nov-20	24-Feb-21
21	Procurement of 40 no Shadow less OT Light Ceiling Type Single Dome	M/s N.W Overseas	0.43	28-Dec-20	28-Feb-21
22	Procurement of 80 no Shadowless OT Light Ceiling Type Double Dome	M/s N.W Overseas	1.61	28-Dec-20	28-Mar-21

23	Procurement of 80 no Water Bath	M/s S.R Technomed	0.37	29-Dec-20	28-Feb-21
24	Procurement of 40 No. Electro Hydraulic Operation Table	M/s LM Agencies	1.71	13-Nov-20	13-Feb-21
25	Procurement of 80 no Hot Air Oven	M/s Mahajan Agencies	0.73	28-Dec-20	28-Mar-21
26	Procurement of 80 no Bio Safety Cabinet	M/s Mahajan Agencies	0.92	28-Dec-20	28-Mar-21
27	Procurement of 100 No. Open Surgery Instrument Set	M/s S.R Technomed	14.92	16-Nov-20	16-Feb-21
28	Procurement of 15 No. Color Doppler Machine	M/s LM Agencies	4.40	13-Nov-20	13-Feb-21
29	Procurement of 02 No. Color Doppler Machine	M/s LM Agencies	0.59	30-Jun-21	30-Sep-21
30	Procurement of 10 No. AV Fistula set	M/s S.R Technomed	0.26	16-Nov-20	16-Feb-21
31	Procurement of 500 No. Modular Monitor	M/s S.R Technomed	22.20	16-Nov-20	16-Feb-21
32	Procurement of 20 No. of Power Backup. High Capacity Electronic Oscillator System 3 Phase 50 KVA with CMC	M/s Acess Traders	13.47	21-Dec-20	21-Feb-21

33	Procurement of 40 No. Full HD lcg Fleurosene technology Laproscope Endivision set	M/s S.R Technomed	20.56	16-Nov-20	16-Feb-21
34	Procurement of 20 No. Plasma Sterilizer	M/s Technomed Services	17.05	16-Nov-20	16-Feb-21
35	Procurement of 230 no Infusion Pump.	M/s LM Agencies	0.59	13-Nov-20	13-Feb-21
36	Procurement of 100 No. Suction Machine-High end	M/s S.R Technomed	6.22	16-Nov-20	16-Feb-21
37	Procurement of 50 no. Anesthesia Work Station	M/s LM Agencies	14.50	13-Nov-20	13-Feb-21
38	Procurement of 60 No. Mobile Operating Light	M/s Arogya International	5.54	1-Jan-21	1-Apr-21
39	Procurement of 20 No. Portable X-Ray Machine (Mobile)	M/s V A Technologies	0.90	16-Nov-20	16-Feb-21
40	Procurement of 40 No. Auto Clave HP Horizontal	M/s V A Technologies	3.27	16-Nov-20	16-Feb-21
41	Procurement of 20 No. C-Arm System	M/s V A Technologies	5.74	16-Nov-20	16-Feb-21
42	Procurement of 10 No. 500 mA X--Ray Machine	M/s V A Technologies	2.01	16-Nov-20	16-Feb-21

43	Procurement of 70 No. ECG Machine Computerized	M/s LM Agencies	0.38	13-Nov-20	13-Feb-21
44	Procurement of 20 Nos Deep Freezer	M/s J&K Scientific Agencies	1.08	24-Nov-20	24-Feb-21
45	Procurement of 175 no Nebuliser	M/s SS Agencies	0.03	19-Jun-21	19-Aug-21
46	Procurement of 1300 no Stethoscope	M/s S.R Technomed	0.14	17-Jun-21	17-Aug-21
47	Procurement of 80 no Auto Clave HP Vertical (2bin)	M/s New Alpine Trader	0.60	17-Jun-21	17-Sep-21
48	Procurement of 100 no Auto Clave vertical single bin	M/s New Alpine Trader	0.73	17-Jun-21	17-Sep-21
49	Procurement of 60 no Sterilizer (Big Instruments)	M/s Esteem Industries	0.04	17-Jun-21	17-Sep-21
50	Procurement of 100 no Sterilizer (Medium Instruments)	M/s Esteem Industries	0.05	17-Jun-21	17-Sep-21
51	Procurement of 100 no Sterilizer (Small Instruments)	M/s Esteem Industries	0.04	17-Jun-21	17-Sep-21
52	Procurement of 60 no Bowl Sterilizer Big	M/s Esteem Industries	0.13	17-Jun-21	17-Sep-21

53	Procurement of 20 no Bowl Sterilizer Medium	M/s Esteem Industries	0.04	17-Jun-21	17-Sep-21
54	Procurement of 40 no Electric Calorimeter	M/s Esteem Industries	0.03	17-Jun-21	17-Sep-21
55	Procurement of 40 no Distilled Water Plant	M/s Esteem Industries	0.38	17-Jun-21	17-Sep-21
56	Procurement of 100 no Rotor / Shaker	M/s S.R Technomed	0.30	17-Jun-21	17-Aug-21
57	Procurement of 60 No. Critical Care Ambulances	M/s Kamal Coach Workd Pvt. Ltd	24.37	30-Jun-21	30-Sep-21
58	Procurement of 80 No Laboratory Incubator (BOD).	M/s Mahajan Agencies	2.01	8-Jun-21	8-Sep-21
59	Procurement of 20 no ABG Analyzer	M/s S.R Technomed	2.18	30-Jun-21	30-Sep-21
60	Procurement of 04 No. CT Scan Machine	M/s Philips India Pvt. Ltd	22.31	13-Nov-20	13-Feb-21
61	Procurement of 2 no 128 Slice CT Scan Machine additional	M/s Philips India Pvt. Ltd	11.29	17-Jun-21	17-Sep-21
62	Procurement of 5 no 128 Slice CT Scan Machine additional	M/s Philips India Pvt. Ltd	28.55	30-Jun-21	30-Sep-21

63	Procurement of 2 no High Capacity Electronic Oscillator System 100 KVA additional	M/s Acess Traders	2.67	24-Jun-21	24-Aug-21
64	Procurement of 40 no Auto Embedic Station	M/s V A Technologies	2.27	30-Jun-21	30-Sep-21
65	Procurement of 20 no Emergency Drug Trolley with auto cylinder	M/s S.R Technomed	0.06	30-Jun-21	30-Aug-21
66	Procurement of 80 no Portable ECG Machine	M/s LM Agencies	0.31	30-Jun-21	30-Sep-21
67	Procurement of Histopathology equipments -Rotary Microtone (10 Nos)	M/s Siab Surgiments	1.03	30-Jun-21	30-Sep-21
68	Procurement of Histopathology equipments- Automated tissue processor (Vaccum infilitration Processor) 10 Nos	M/s Jaykon Scientific Industyries	2.96	30-Jun-21	30-Sep-21
69	Procurement of Histopathology equipments- Automated Slide Stainer (10 Nos)	M/s Jaykon Scientific Industyries	2.19	30-Jun-21	30-Sep-21

70	Procurement of Histopathology equipments-Fully Automated Microtone (10 Nos)	M/s Siab Surgiments	2.21	30-Jun-21	30-Sep-21
Project Implementation Unit (PIU).	**Jammu & Kashmir Medical Supplies Corporation Ltd. (JKMSCL)**				
Project Management Unit (PMU)	**JHELUM TAWI FLOOD RECOVERY PROJECT (JTFRP)**				
Funding Agency	**World Bank**				
Total Contract Price	**294.75 Cr.**				

3. RESULTS :

- **Deliverables:**

- Procurement of approximately 6,000 medical equipment items by JKMSCL under 70 sub-projects.
- Distribution of supplies to hospitals, district health centers, sub-district hospitals, and community health centers across Jammu and Kashmir by JKMSCL.

- **Performance Metrics:**

- Timeliness of procurement and distribution processes.
- Feedback from healthcare facilities on the adequacy and functionality of supplied medical equipment.
- Improved response times in emergency healthcare situations post-disaster.

- **Quality Assurance:**

- Ensured that all medical equipment met World Bank standards and local healthcare needs through rigorous approval processes and quality checks by JKMSCL.

4. LESSONS LEARNT:

- The specifications and requirements for medical equipment should be forwarded to the PMU for review to ensure transparency and alignment with healthcare needs before procurement.
- Establishing a strong PMU with a clear mandate and state ownership is crucial. Retaining trained staff for at least three years and providing adequate capacity development support is essential for timely project implementation.

5. CONCLUSION:

- **Summary:** Component 6 of the JTFRP has successfully established a robust mechanism for emergency response through the procurement and distribution of essential medical supplies. This initiative has significantly strengthened the healthcare infrastructure in Jammu and Kashmir, allowing for improved preparedness for future natural disasters.
- **Impact:** The enhanced capacity and resilience of the healthcare system have led to more effective responses to emergencies, ultimately saving lives and improving health outcomes in the region. The lessons learnt from this project will inform future initiatives and improve disaster preparedness strategies.

6. PICTURES OF THE MEDICAL EQUIPMENTS:

1. Critical Care Ambulance:

2. ABG Analyzer:

3. Anesthesia Workstation:

4. Defibrillator Biphasic:

5. Hemodialysis Machine:

6. ICU Bed:

7. Rotor Shaker:

8. Suction Machine:

9. X-Ray Machine:

10. Automated Slide Strainer:

VOLUME-II

PHASE A: SUPPLY, INSTALLATION, TESTING & COMMISSIONING OF ELECTRICAL ITEMS & CONSTRUCTION OF OXYGEN PLANT ROOM FOR 15 SITES IN KASHMIR DIVISION.

PHASE B: SUPPLY, INSTALLATION, TESTING & COMMISSIONING OF OXYGEN GENERATION PLANTS & MEDICAL GAS PIPELINES WITH MANIFOLD & SERVO STABILIZERS FOR 15 HOSPITALS IN KASHMIR DIVISION


GOVT. OF JAMMU & KASHMIR
WORK IN PROGRESS
PROJECT MANAGEMENT UNIT
OXYGEN GENERATION PLANT
SUB DISTRICT HOSPITAL CHARAR-I-SHARIEF
AMBULANCE
108


JHELUM & TAWI
FLOOD RECOVERY PROJECT
THE WORLD BANK
JTFRP
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OXYGEN GENERATOR
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1. Introduction

1.1 Project Background

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Based on the Rapid Damage Needs Assessment (RDNA): Results, restoration works underway and discussion with the GOJ&K, the project will focus on resorting critical infrastructure using international best practice on resilient infrastructure. Given the state's vulnerability to both floods and earthquakes, the infrastructure will be designed with upgraded resilient features and will include contingency planning for further disaster events. Therefore, the project aims at both restoring essential services disrupted by the floods and improving the design standard and practices in the state to increase resilience.

1.2 Project Development Objective: The Project Development Objective (PDO) is to support the recovery and increase disaster resilience in targeted areas of the state and increase the capacity of the state entities to respond promptly and effectively to an eligible crisis or emergency.

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The project is comprised of the following seven components:

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7. Contingent Emergency Response (US$ 45 million)
8. Implementation Support (US$ 20 million).

Total Amount is US$ 250 Million.

Component 6 – Contingent Emergency Response, US$ 45 million:

Component 6 was designed as a flexible financial mechanism within the project to ensure a swift and effective response to unforeseen natural disasters. In the event of a major adverse natural event, such as earthquakes, floods, or other catastrophic events, the Project Implementation Entity (PIE) was empowered to request the reallocation of project funds to support emergency response and recovery efforts. This component was intended to draw resources from the unallocated expenditure category and, if necessary, re-categorize and reallocate financing from other project components to address immediate needs arising from the disaster.

Additionally, Component 6 allowed for the channeling of additional funds, should they become available as a result of the emergency, ensuring that sufficient resources were available to aid affected populations and restore critical infrastructure and services.

2. Executive Summary:

- **Objective:** The Projective Objective under this Component is to provide Oxygen facility in the Govt. Hospitals to support the recovery & increase disaster resilience in the Target areas of the Kashmir region & increase the capacity of the State entities to respond promptly and effectively in an emergency.
- **Summary of Achievement:** Constructed 15 no's separate Oxygen Plant Buildings in short listed Govt. Hospital Buildings with complete commissioning of Oxygen Generation Equipments, Medical Gas Pipelines with manifolds, Transformer and Servo Stabilizer in all the 15 no's Govt. Hospitals.

2.1 Introduction & Background:

Utilization of Component 6 in Response to the COVID-19 Pandemic:

In response to the challenges posed by the COVID-19 pandemic, the Government of India initiated an emergency sub-project under Component 6 aimed at enhancing oxygen supply facilities and procuring essential medical equipment for government hospitals in Jammu and Kashmir. This intervention was crucial for supporting recovery efforts and strengthening the region's health sector, particularly in areas severely impacted by the pandemic. In 2020, a significant number of COVID-19-related deaths in Jammu and Kashmir were attributed to oxygen shortages in healthcare facilities.

With the endorsement of the World Bank, the Jammu and Kashmir Urban Sector Development Agency (JTFRP) spearheaded the project, planning to install 30 Oxygen Generation Plants equipped with manifolds across key government health institutions. The Health and Medical Education Department identified 15 hospitals in the Jammu region and 15 in the Kashmir region for this critical intervention.

The implementation of the project was structured in two key phases:

I. **Phase A: Supply, installation, testing & commissioning of Electrical items & construction of Oxygen Plant Room for 15 sites in Kashmir Division.** This phase involved the construction of dedicated Oxygen Plant Rooms in 15 government hospitals to accommodate the newly installed oxygen generation units.
II. **Phase B: Supply, installation, testing & commissioning of Oxygen generation plants & medical Gas Pipelines with manifold & Servo stabilizers for 15 Hospitals in Kashmir Division**– This phase involved the installation of oxygen generation units, medical gas pipeline systems, manifolds, and servo stabilizers in the selected hospitals, ensuring a reliable oxygen supply to support critical patient care.

Given the urgent nature of the need and the potential for future emergencies, the procurement process was expedited through a Direct Contracting System, approved by the World Bank. This approach ensured the swift mobilization of resources, enabling the reallocation of project funds to support emergency response and recovery efforts in a timely manner.

2.2 Project Detail:

I. Building: Load bearing walls in Brick Masonry with internal dimension of 22'-0 x 45'-0" and average height of 14'-0" from floor to ceiling are constructed with average size of footing (4'-0 x 2'-0") below ground level and 2'-0" above ground level. RCC band in M20 is provided at Footing Level, Lintel Level and Truss Level. RCC flooring is provided with bearing on the end walls and roof is provided with Steel Truss with color coated sheets of 0.50mm thickness with 2'.6" wide soffit on all the sides. All internal and external electrical fitting are of ISI mark and provided as per the Design parameters.

II. Supply, Installation, Testing & Commissioning of:

Distribution of Transformer/ sub-station.

- 160 kva (10 no's)
- 250 kva (5 no's)
- Diesel Generators
- 125 kva (10 no's)
- 250 kva (5 no.)
- LT Distribution Panel, APFC Panel.
- HT/LT Cabling Work.

III. **Oxygen Generation Plant:** (500 LPM) Oxygen Generation Plant (500 LPM) include Supply; Installation & Commissioning of PSA Technology based (Pressure swing absorption) Continuous duty Oxygen Generation Plant of 500 LPM Capacity (30NM3/hr.) of having 93 + 3% Purity at NTP with all allied equipments.

- Main Oxygen Concentrator (delivering 93 + 3%) purity Oxygen at 5.0 bars pressure.
- Air Compressor (2 no.) @ 10kg/cm2 (Sound proof)
- Air Receiver Tank (300 liters capacity) having working pressure of 12 kg/cm2)
- Filtration System (Operating pressure range 3-13 kg/cm2)
- Air Dryers Pressure range 4-12 kg/cm2
- Oxygen Receiver Tank (2000 liters capacity)
- Automatic Control panel
- Electric Copper cables of different core.
- Servo Stabilizer of 250Kva.
- Medical Grade Oxygen Gas storage cylinders D-type – 7m3 capacity.
- Medical Grade Oxygen Gas storage cylinders trolley mounted B-type – 1.5m3 capacity.
- Oxygen manifold 8+8 cylinder.
- Emergency Oxygen Manifold 3+3 cylinders.

IV. **Oxygen Generation Plant (300 LPM):** Supply, Installation, Testing & commissioning of PSA Technology based Oxygen Generation Plant of 300 LPM Capacity (18NM3/hr) of having 93 + 3% purity at NTP will follow all allied equipments.

- Main Oxygen Concentrate delivering 93 + 3% purity oxygen gas at 5.0 bars pressure.
- Air Compressor (2no's) to generate 300 LPM of Oxygen @10 kg/cm2.
- Air Receiver Tank 2000 liters capacity having a working pressure of 12kgs/ cm2.
- Filtration System: For supply of Medical grade air having operating pressure range of (4-13) kg/cm2.
- Air Dryers: Operating Pressure Range of (4 to 12.5) kg/cm2.
- Oxygen Receiver Tank: 150 liters capacity.
- Automatic Control Panel

- Servo Stabilizer – 150 KVA.
- Medical Grade Oxygen Gas storage cylinders D-type – 7 m3 Capacity.
- Medical Grade Oxygen Gas storage cylinder B-type – 1.5m3 capacity.
- Oxygen Manifold (8+8) Cylinder.
- Emergency Oxygen Manifold (3+3) Cylinder.

2.3 Contract Details:

S.no.	Description/Location	M/S Wani Infratech Kashmir (Civil & Electrical works)	M/S Hitech Medigas Solutions. (Oxygen Generation Equipments& allied items.)
1.	CHC Kreeri (300 LPM)	Completed & Handed over to the Health Deptt. after DLP.	Completed & Handed over to the Health Deptt. after DLP.
2.	CHC Qazigund (300 LPM)	----do---	---do---
3.	CHC Yaripora (300 LPM)	----do---	----do---
4.	SDH Gurez (300 LPM)	----do---	----do---
5.	SDH Tangdar (300 LPM)	----do---	----do---
6.	CHC Zainapora (300 LPM)	----do---	----do---
7.	CHC Beerwah (300 LPM)	----do---	----do---
8.	CHC Keller (300 LPM)	----do---	----do---
9.	SDH uri (300 LPM)	----do---	----do---
10.	CHC Hajin (500 LPM)	----do---	----do---
11.	CHC Kangan (500 LPM)	----do---	----do---
12.	CHC Tangmarg (500 LPM)	----do---	----do---
13.	SDH Charie Sharief (500 LPM)	----do---	----do---
14.	SDH Tral (500 LPM)	----do---	----do---
15.	MMC Zakura (300 LPM)	incomplete	incomplete

DETAILS OF THE STAKEHOLDERS	
Contract Title	**Construction of 15 no's Oxygen Generation Plants in Govt. Hospitals in Kashmir Region.**
Project Implementation Unit (PIU).	**J&K Economic Reconstruction Agency**
Project Management Unit (PMU)	**JHELUM TAWI FLOOD RECOVERY PROJECT (JTFRP)**
Contracting Agency	**Phase A: M/S Wani Infra tech Pvt Ltd. (Rs.9.1 cr).** **Phase B: M/S Hi Tech Medigas Solutions Items. (Rs.24.871cr.)**
Audit Consultants	**LEA ASSOCIATES SOUTH ASIA PVT LTD. (TAQAC)**
Funding Agency	**World Bank**
Contract Price	**33.971 cr.**
Variation	**(+) 0.363 cr.**
Revised Contract Price	**34.334r.**

3 RESULTS :

- **Deliverables:**
- Successfully constructed and commissioned 15 Oxygen Generation Plants (OGPs) across selected government hospitals in Jammu and Kashmir, including:
- 5 units with a capacity of 500 LPM.
- 10 units with a capacity of 300 LPM.
- Established medical gas pipeline systems and emergency oxygen manifolds in all hospitals.
- Provided essential electrical and control equipment to ensure operational efficiency.

- **Performance Metrics:**
  - Oxygen plants are currently operational and supplying oxygen at a purity of 93% ± 3%.
  - Increased patient capacity in district government hospitals due to enhanced oxygen availability.
  - Reduction in patient referrals to urban centers, indicating improved local healthcare capability.
  - Positive feedback from healthcare providers regarding the reliability and efficiency of the oxygen supply.

- **Quality Assurance:**
  - All equipment installed adhered to international standards for medical-grade oxygen systems.
  - Regular inspections and testing during installation phases ensured compliance with safety and operational standards.
  - Training sessions conducted for hospital staff on operating the oxygen generation units and emergency protocols.

4 LESSONS LEARNT:

- **Successes:**
  - The swift mobilization of resources under Component 6 allowed for rapid installation in response to the COVID-19 crisis.
  - Collaboration with the Jammu and Kashmir Urban Sector Development Agency (JTFRP) and endorsement from the World Bank facilitated efficient project execution.
  - The project successfully addressed immediate health needs, particularly in remote areas, significantly enhancing local healthcare infrastructure.

- **Areas for Improvement:**
  - Soundproofing measures were not implemented, leading to noise pollution in hospital settings; future projects should prioritize acoustic treatments.
  - The infrastructure for filling gas cylinders in manifold units was inadequate, highlighting the need for dedicated setups to enhance operational efficiency and safety.
  - Essential facilities such as pantries, restrooms, and dormitories for operators were overlooked; incorporating these into future designs is crucial for staff welfare.

5 CONCLUSION:

- **Summary:** The project successfully completed the construction and commissioning of 15 Oxygen Generation Plants in government hospitals. Utilizing PSA technology, these facilities have created oxygen banks through manifolds and emergency oxygen systems. The enhanced oxygen supply has led to increased patient capacity in district hospitals and improved recovery rates. Moreover, there has been a noticeable decrease in patient migration to urban hospitals.
- **Impact:** The implementation of 15 oxygen generation plants (5 at 500 LPM and 10 at 300 LPM) has strengthened local healthcare delivery in Jammu and Kashmir. The significant improvement in oxygen availability has resulted in better patient outcomes and reduced referrals to city hospitals, thereby enhancing overall health service resilience in the region.

6. PICTURES OF THE OXYGEN GENERATION UNITS (KASHMIR DIVISION):


OXYGEN GENERATION PLANT
COMMUNITY HEALTH CENTRE YARIPORA
JAK ECONOMIC RECONSTRUCTION AGENCY
UNDER WORLD BANK FUNDED JHELUM TAWI FLOOD RECOVERY PROJECT


OXYGEN GENERATION PLANT
SUB DISTRICT HOSPITAL BEERWAH
JAK ECONOMIC RECONSTRUCTION AGENCY
UNDER WORLD BANK FUNDED JHELUM TAWI FLOOD RECOVERY PROJECT
JHELUM & TAWI
FLOOD RECOVERY PROJECT
THE WORLD BANK
JTFRP
Oxygen Plant Beerwah
15.04.2024 12:26
E: 7683664 N: 2531999 (±7m)
Altitude: 1719m
2H8Q+WHJ, Beerwah, 193411
S


OXYGEN GENERATION PLANT
ERA


OXYGEN GENERATION PLANT
ERA


OXYGEN GENERATION PLANT
JHELUM & TAWI FLOOD RECOVERY PROJECT
THE WORLD BANK
JTFRP
Oxygen Plant Tangmarg
16.04.2024 13:10
E: 7661911 N: 2508474 (±11m)
Altitude: 2122m
3C7G+PXC, Hospital Road, Tangmarg, 193402
E


GOVT. OF JAMMU & KASHMIR
WORK IN PROGRESS
PROJECT MANAGEMENT UNIT
OXYGEN GENERATION PLANT
SUB DISTRICT HOSPITAL CHARAR-I-SHARIEF
AMBULANCE
108


OXYGEN GENERATION PLANT
RESTRICTED AREA


JHELUM & TAWI
FLOOD RECOVERY PROJECT
THE WORLD BANK
JTFRP
CHC Gurez Oxygen Plant
21.09.2024 16:02
34.63321, 74.83581 (±5m)
Altitude: 2403m
JRMP+66J, Gurez Valley, Dawar, Forest
Block, 193503
BUFFER TANK
AIR TANK 2
S


JHELUM & TAWI
FLOOD RECOVERY PROJECT
THE WORLD BANK
JTFRP
Oxygen Plant at SDH Keller Shopain
12.06.2024 12:57
E: 7744106 N: 2544970 (±14m)
Altitude: 2066m
QQM6+JWM, Kellar, 192302
OXYGEN GENERATOR
E


JHELUM & TAWI
FLOOD RECOVERY PROJECT
THE WORLD BANK
JTFRP
Oxygen Plant Hajin
27.02.2024 11:57
E: 7631481 N: 2555706 (±5m)
Altitude: 1569m
7JRC+84Q, Hajan, 193501
OXYGEN GENERATOR
NE

END OF REPORT